CLAIMS

What is claimed is:

1. An isolation providing method comprising:

(a) defining a first oxidation stop layer above a first conductively-doped semiconductor layer;

(b) providing a first intrinsic silicon layer on the first oxidation stop layer;

(c) oxidizing at least a sublayer portion of the first intrinsic silicon layer so as to thereby create a corresponding and thermally-grown, first intrinsic silicon oxide sublayer over the first semiconductor layer; and

(d) disposing a second conductively-doped semiconductor layer above the first intrinsic silicon oxide sublayer so that the first intrinsic silicon oxide sublayer provides isolation between the first and second conductively-doped semiconductor layers.

2. The isolation providing method of Claim 1 wherein:

(c.1) said thermally-grown, first intrinsic silicon oxide sublayer includes stoichiometric silicon dioxide (SiO_2).

3. The isolation providing method of Claim 1 wherein:

(b.1) said providing of the first intrinsic silicon layer includes using atomic layer deposition (ALD) to define a thickness of the first intrinsic silicon

layer.

4. The isolation providing method of Claim 3 wherein:

(b.2) said thickness of the first intrinsic silicon layer is in a range of about 15Å to about 50Å.

5. The isolation providing method of Claim 4 wherein:

(a.1) said defining of the first oxidation stop layer includes creating a first silicon nitride composition having a nitrogen concentration of at least about 5% atomic.

6. The isolation providing method of Claim 5 wherein:

(a.1a) said first silicon nitride composition has a nitrogen concentration of at least about 10% atomic.

7. The isolation providing method of Claim 5 wherein:

(a.2) said creating of the first silicon nitride composition includes using Decoupled Plasma Nitridation (DPN) to introduce nitrogen into the first conductively-doped semiconductor layer.

8. The isolation providing method of Claim 5 wherein:

(a.2) said creating of the first silicon nitride composition includes using Remote Plasma Nitridation (RPN) to introduce nitrogen into the first conductively-doped semiconductor layer.

9. The isolation providing method of Claim 5 wherein:

(a.2) said creating of the first silicon nitride composition includes using ion implant to introduce nitrogen into the first conductively-doped semiconductor layer.

10. The isolation providing method of Claim 1 and further characterized by:

(c.1) continuing said oxidizing of the first intrinsic silicon layer at least until a corresponding first oxidation front crosses into the first oxidation stop layer so as to thereby perfect formation of silicon dioxide in the thermally-oxidized, first intrinsic silicon layer.

11. The isolation providing method of Claim 10 and further characterized by:

(c.2) continuing said oxidizing of the first intrinsic silicon layer yet further so as to consume silicon atoms within the first oxidation stop layer and so as to thereby produce additional silicon oxide from the consumed silicon atoms.

12. The isolation providing method of Claim 10 and further comprising:

(e) providing a silicon nitride layer between the first and second conductively-doped semiconductor layers so that the combination of the silicon nitride layer and the perfected silicon dioxide in the thermally-oxidized, first intrinsic silicon layer provide isolation between the first and second

conductively-doped semiconductor layers.

13. The isolation providing method of Claim 12 and further comprising:

(f) providing a second silicon oxide layer between the silicon nitride layer and the second conductively-doped semiconductor layer so that the combination of the second silicon oxide layer, the silicon nitride layer and the perfected silicon dioxide in the thermally-oxidized, first intrinsic silicon layer provide isolation between the first and second conductively-doped semiconductor layers.

14. The isolation providing method of Claim 1 and further comprising:

(e) providing a silicon nitride layer between the first and second conductively-doped semiconductor layers so that the combination of the silicon nitride layer and the first intrinsic silicon oxide sublayer provide isolation between the first and second conductively-doped semiconductor layers.

15. The isolation providing method of Claim 14 and further comprising:

(f) providing a second silicon oxide layer between the silicon nitride layer and the second conductively-doped semiconductor layer so that the combination of the second silicon oxide layer, the silicon nitride layer and the first intrinsic silicon oxide sublayer provide isolation between the first and second conductively-doped semiconductor layers.

16. An insulating structure comprising:

(a) an oxidation stop layer; and

(b) a thermally-grown, intrinsic, silicon oxide layer which has been grown from ALD deposited intrinsic, silicon that had been deposited on said oxidation stop layer.

17. The insulating structure of Claim 16 wherein:

(a.1) said oxidation stop layer includes a nitridated surface of a floating gate electrode.

18. The insulating structure of Claim 16 wherein:

(a.1) said oxidation stop layer includes a silicon nitride composition having at least 5% atomic concentration of nitrogen.

19. The insulating structure of Claim 18 wherein:

(a.1) said oxidation stop layer has a thickness of no less than about 5Å and no more than about 30Å.

20. The insulating structure of Claim 19 wherein:

(b.1) said thermally-grown, intrinsic, silicon oxide layer has a thickness of no less than about 30Å and more than about 100Å.

21. The insulating structure of Claim 16 wherein:

(b.1) said thermally-grown, intrinsic, silicon oxide layer has a thickness

of no less than about 30Å and more than about 100Å.

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